

Assessment of the Channel Islands' Marine Reserves using a Long-term Ecological Monitoring Program



OVERVIEW

There have been widespread and dramatic changes to the marine ecosystem at the Channel Islands during the past 24 years. The National Park Service's Kelp Forest Monitoring Program, which has been ongoing since 1982, has documented these changes and helped distinguish between man-made (fishing) and natural

The Park's long-term ecological monitoring program showed the effects of a small Marine Reserve at Anacapa Island and was instrumental in substantiating the need for a network of Marine Reserves at the Channel Islands, which was established by the State of California in 2003. In response the National Park Service doubled the number of monitoring sites in order to establish a baseline. The Park's monitoring program provides a fishery-independent baseline of the newly established This is critical in understanding the effectiveness of Reserves as an ecosystem management tool.

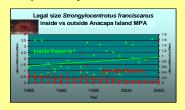
Funding will be needed after 2007 to continue this expanded monitoring program.

Kelp Forest Monitoring Program

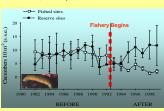
The National Park Service, in cooperation with the State of California and the U.S. Department of Commerce, are charged with the responsibility of monitoring the health of park ecosystems and recommending actions to better protects those systems. In cooperation with these agencies, Channel Islands National Park implemented a long-term kelp forest monitoring program in 1982 to collect base line information on the Park's kelp forest ecosystem. The program monitors 70 species or groups of taxa that include algae, invertebrates and fish. The monitoring data set is the only the only long-term fishery independent data set available from the Channel Islands, and it has been instrumental in fishery management actions.

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Examples of fishery effects:



One small (17ha) area on Anacapa Island was protected since 1978. Comparisons of monitoring data collected from in and out of that reserve were very influential in the establishment of the current Reserve network. In this small Anacapa Reserve, fishing effects were shown to impact the populations of abalone and sea cucumbers The proportion of legal sized (e38mm) red sea urchins is higher in the Marine Reserve, than in adjacent areas.



The marine ecological monitoring information collected by Channel Islands National Park was critical to the establish Channel isasion National Park was critical to the establishment of the marrine reserves in the park by documenting the decline of some species in spite of the efforts of managers to sustain the same species of the efforts of managers to sustain the same species. As an example, monitoring data demonstrated a decline in sea cucumbers, Parasichopus private part of the same species of th



Kelp Forest Monitoring Program doubled in 2005

In 2005, funding from the National Park Service supported the addition of 16 fixed monitoring sites. The new sites are paired up with eight existing sites to monitor four of the 11 new Reserves. These four Reserves now have three sites inside and three sites adjacent to each. The data collected from these 24 sites will serve as a powerful tool for analyzing the long-term effectiveness of these MPAs. Evaluation of the Channel Islands marine reserves will be critical to influencing the extent to which marine reserves are utilized as a fishery management and biological conservation tool in California and beyond.

Several publications (Rodgers-Bennett et al. 2002 and Schroeter et al. 2001, Behrens and Lafferty, 2004) have showed that the Parks monitoring protocols have sufficient power to show effects of Marine Reserves. Without baseline information it may be more difficult and costly to properly evaluate the

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